THE STREET LAYOUT

By B. Antrim Haldeman,
Assistant Engineer, Bureau of Surveys, Philadelphia.

The street layout may seem, to the layman and to the citizen who gives little serious thought to the physical development of the community in which he lives, to be one of the most commonplace, uninteresting and unimportant of all the many problems of communal growth which have come to be grouped, for convenience, under the term "town planning;" and yet, it can scarcely be successfully disputed that the street exercises a larger influence upon economic accretion and expansion than any other feature of the town. If there is one class of improvements which is more necessary, which becomes more permanent and unalterable, or which exerts a stronger influence upon the individuality and general physical aspect of the city, than any other, it is the layout of the streets. A map of a city is necessarily a map of its streets and no written description of a city can be visualized or be made fully intelligible unless it conveys a clear understanding of the layout of its streets. The street layout determines, in a very large degree, how the people shall live, how they shall travel to and fro, how they shall work and play; it has a direct influence upon the character of the home and its surroundings, upon the safety, comfort and convenience of the people, and upon the efficiency of government and the public service.

Only recently has there come to be any widespread interest in this subject. In fact, it has been scarcely more than a decade since public officers responsible for the planning of streets began to regard it as a problem worthy of more than the most perfunctory attention, and still later have scientific and technical organizations found in it sufficient importance to warrant their giving space to it in their discussions or their publications. From a condition of obscurity and neglect, as a problem in practical economy worthy of analytic investigation, it has rapidly risen to recognition as a fundamental element in the modern practice of town planning which, quite recently, has reached a position of such commanding importance as to call into existence a new school of specialists to meet the de-

mand for a more scientific and efficient solution of the complex problems which have been created by the intensive growth of great cities.

It is true that streets have existed is some form wherever human beings have congregated in communities since the creation but only in cases where a city has been planned under autocratic authority having in view some special purpose that was reasonably certain of accomplishment has a street layout been established with the intelligent care and foresight that enabled it to properly fulfil its functions and meet all the burdens laid upon it. Even in those cities designed to be the capitals of mighty nations, to glorify the power and vanity of monarchs or to gratify the whims and caprices of kings and princes only so much was planned comprehensively as lay within the immediate needs and purposes of the scheme, and growth beyond those needs and purposes was left to chance.

If we care to trace the history of city building down the centuries we invariably find that during those periods and in those nations where science, literature and art exercised their greatest influences the street layout of cities was more regular and formal than during those periods when the culture and refinement of civilization were at a lower level. The formal, dignified, and in many instances spectacular, planning that characterized the classic period of Greece and Rome suffered a decline during the Middle Ages and the cities that had their origin or achieved considerable substantial growth during the long and stormy period between the fall of the Roman Empire and the rise of the Renaissance present a condition of irregularity verging upon chaos. The Renaissance brought with it a revival of formal planning but the street layout, then as now, resisted innovations more stubbornly than did other forms of urban improvement and it was not until long after the first colonies were planted in America that whole cities began to assume the semblance of great checkerboards. The Renaissance also brought with it, as the natural concomitant of the straight line street, that most monotonous and unlovely conception known as the "row" house which grew out of the invention of giving a row of separate houses the appearance of one vast building through the artifice of a uniform façade extending an entire block surmounted by a mansard roof.

The modern city, no matter what its activities or the impulses of its growth may be, requires a layout of its streets quite different from that of any city of the past. The conditions of urban life and

the needs of urban growth have changed radically with the wider diffusion of industry, education and wealth, and with the increasing tendency of the people to congregate in vast communities. There is little probability of any effective check being put upon the drift of the people to the cities so long as the country fails to provide opportunities for business and social success and for legitimate recreation and diversion relatively equal to those of the city, and if cities are to continue to expand and increase in population as rapidly during the next few decades as they have in the past, new measures for controlling, regulating and directing their physical growth must be established and enforced, and among these new measures none will be more necessary or exert a more far-reaching and beneficial influence than those directed toward more efficient and economic street planning if administered by courageous, skilful and wide-visioned public officials.

Excepting the recent work of the new school of city planners and a few isolated instances of much earlier date, nothing in all the science or art of city building in America, whether it be of much or little consequence, has received such scant consideration as the street layout. Although street planning in Europe seems always to have been esteemed a matter of importance, its history in America is a record of thoughtless, inconsistent and unreasoning acts, and the plans evolved require little more than a hasty glance to arouse a strong suspicion that the street systems they represent were of accidental or mechanical origin; that they were laid out by property owners in the manner believed to offer the best immediate returns in the sub-division and development of individual estates or by public authorities who arbitrarily applied the simplest and easiest method that suggested itself to them and enabled them to plot the largest area in the least time and with the least labor possible; and that in neither case was there any attempt to forecast accurately the future needs of the street or the territory it would help to serve or to investigate the probable efficiency or economy of the general layout.

The city planner who approaches the problem of extending and revising the street system of a city with a view of applying both science and common sense to its solution quickly learns that forecasting the mysterious probabilities of the future is less appalling than the task of correcting the errors of the past. The difficulties in the way of correcting past errors do not lie in the lack of wisdom,

skill, or courage to perform the work successfully so much as in the physical and financial obstacles to be overcome, and in the hesitancy to assume the responsibility for the temporary destructiveness and large initial cost involved in the undertaking.

There are always sufficient data obtainable, if collated in an intelligent and painstaking manner, to give the planner a fairly accurate basis upon which to work out a scheme of replanning which will be fully adequate to correct the evils that have resulted from careless and haphazard work. A thorough and systematic study of the physical condition of a city, of property values, of the distribution of business, industrial and residential areas, of the health of the people, of the mediums and facilities of circulation, and of the volume and directions of the currents of traffic, is of the greatest importance as an aid to efficient and economic replanning. The collection and systematization of data of this kind in a form available for practical use are, in themselves, an undertaking requiring patience, time and skill, but they afford the only rational and safe basis for working out the problems of reconstruction which now confront most of our large cities, and it is possible to reduce them to a systematic process, uniformly applicable to the investigation of the needs of any city.

It does not appear, however, that any fixed rule or principle, based upon practical experience or exhaustive investigation, can be established for planning streets, either singly or as systems, for a new town or for the extension of an old one. Here lies the planner's opportunity to give free rein to his imagination and his individuality, here is the test of his genius, judgment and common sense, here his powers of prevision and of prophecy are brought into service untrammeled by masses of figures and statistics; he is not called to prescribe a cure for an existing ill but to peer into the future and create something that time will applaud or condemn and he must solve his problem without any very tangible data to guide him, unless it be the desire of a client to accomplish some well defined object.

Much of what is considered good modern planning is done by "rule of thumb" in order to produce speedy results, to conform to some ingrained prejudice, or to carry out some favorite practice. The application of new theories, no matter how rat onal or well grounded they may seem, is often confronted by many obstacles; it

is sometimes difficult to convince those in authority that a radical change of practice is necessary, or even advantageous; long standing custom is difficult to overcome; local conditions and local sentiment, whether favorable or unfavorable to good results, exercise much influence; the depth of lot that has been customary in a community, whether or not it is suitable for the best form of development, is permitted to regulate the distance between streets and certain street widths have become a confirmed habit too deep-seated to be easily reformed; real estate interests often dominate the situation and the profits of speculators and builders must receive first consideration. These and many other influences often hamper the planner and prevent him from establishing the system which his best judgment, after a careful study, points out as the one best adapted to the case before him.

Many street layouts have been put upon paper, and even officially adopted for the purpose of development, which indicate a desire to produce an attractive and mechanically well proportioned plan rather than an effort to obtain really efficient results; in other instances theories have been applied which are popular at the moment but which may ultimately result in conditions which future generations may find just as oppressive and as difficult as those which now confront us. In the present zeal for comprehensive planning there is danger that cities may undertake to execute ambitious and costly plans which look well upon paper and seem to possess much real merit but which have received only superficial study by reason of the limited time and funds placed at the disposal of the planner; such plans may produce no better results in actual practice than those that happen accidentally although they will cost much more.

Much has been said and written in earnest advocacy of maintaining the individuality of towns and the individuality of a town is influenced to a marked extent by the street layout. Individuality is an element that does not yet seem to deserve great consideration in American cities; their rapid and undisciplined growth, the constant wrecking and re-erection of buildings, the conversion of the character and use of whole neighborhoods and the lack of stability and dignity of their domestic architecture have prevented them from achieving much that is distinctively characteristic or worth the effort to perpetuate. For individuality worth preserving we must

revert to the communities that have not entirely lost the atmosphere of colonial days by destroying the last remnants of their colonial architecture and covering their "village greens" with workshops.

Some tendency is being shown in American street planning toward the adoption of the medieval street in some of its forms and also the schemes suggested by the garden cities and industrial colonies of England and Germany. Such layouts approach the ideal for small self-contained and proprietor-controlled communities but their adoption in large and rapidly growing industrial cities, or in cities where there is a constantly shifting ownership and use of land and a periodical, and sometimes radical, change in public policies and administration, should be undertaken cautiously and conservatively. The plea for the medieval street lies in the opportunity it gives for picturesque effect, and picturesque it most truly is when we find it within the rugged walls of an old feudal city, wandering aimlessly between solid rows of quaint and many gabled buildings gray and bent with age, and full of an atmosphere of mystery and romance. Whatever of verity there may be in the plausibly argued contention of the town-planning savants that the picturesque chaos of the medieval towns of Germany and Italy is the perfect result of deliberately worked-out design, and however much we may delight in threading the narrow and devious courses of those quaint and captivating highways and byways, it is doubtful whether any attempt to reproduce them or adapt them to the needs of the modern industrial community under modern social and political conditions is desirable or commendable or could be fully successful; they belong to and are a part of a picturesque and romantic, although stern and strenuous, period of the world's history and should be permitted to remain exclusively characteristic of that period, since any attempt to reproduce them with modern architectural settings will probably result in unsatisfactory imitation at best and is certain to corrupt the well deserved admiration we hold for the pure, original type.

The street layouts of the garden cities, co-partnership tenants and industrial communities of England and Germany have found many earnest admirers and enthusiastic advocates in our own country and there appears to be no doubt that their application to limited and self-contained areas has proved eminently satisfactory. Before such layouts can be safely introduced into the planning of our large

and rapidly spreading American cities, however, it will be necessary for our municipal authorities to have complete control over the laying out of streets and the subdivision and use of private property and to exercise that authority with the utmost discretion and impartiality. Very many difficulties of administration and maintenance, which could scarcely be successfully managed under our present methods of municipal government and individual ownership and control of land, would occur if we should attempt such planning as we find in the garden cities. In those communities the tenants are a selected class, do not acquire actual ownership of land and are always subject to the strict rules of a governing body in the care and use of the property they occupy. This permits the enforcement of a uniform and thoroughly effective system of maintenance; such a system of supervision and maintenance would not be possible in a large community where the owners or tenants, or both, change frequently and where neither may give active aid in keeping up the character or physical condition of a neighborhood. The narrow ways, dead-end streets, alleys, enclosed courts, allotment gardens, secluded open spaces and other features which contribute much to the financial success and physical enticement of the garden cities would, by their nature, make them an easy prey to degenerative agencies and permit their rapid deterioration to slum conditions were it not for the constant vigilance and thorough supervision of the managers or trustees of the estates. Until the same perfection of control and upkeep can be exercised the experiment of applying garden city methods of planning in American cities should be undertaken very cautiously.

Of virtue no less doubtful than the grafting of the feudal street or the garden city layout upon the metropolitan city is the street system where travel never has an opportunity for reaching its destination by a direct route, but must accommodate itself to the necessity of changing its direction at every forward move. No feature of the new street-planning practice is overworked, maltreated or misapplied so persistently as is the curving street. It has a legitimate mission and an undeniable charm when justified by the topography, cast in an appropriate setting, or skilfully introduced either as an incident or a special feature of a general scheme; but when applied indiscriminately and arbitrarily with the sole object of a presumed beauty and without any guarantee that that object will be fully

achieved in the development of abutting property, it loses all force or reason for its creation and becomes less desirable, more wasteful, and more productive of nuisances and misfits than even the despised checkerboard.

All successful street planning is predicated upon the skill and fidelity with which the planner co-ordinates the three fundamental purposes of the plan and makes ample provision for every form of transportation and circulation, provides for the most advantageous development of property for its various uses and creates opportunities for the expression of civic art. The needs of transportation have generally been ignored, or subordinated to the profits of land speculation, but we are beginning to realize that the first requisite for the healthy growth of the modern city is rapid transit and easy and direct routes of communication.

Nothing has contributed so largely to the increase in the importance and usefulness of the street as the rapid development of the forms and mediums of transportation, and street-planning methods have not nearly kept pace with its normal requirements. The twentieth century city is growing much larger and much more rapidly than any of its predecessors and the service required of its streets is vastly greater and widely different from that which was required of the streets a century ago when they were given over chiefly to the use of pedestrians, beasts of burden, and the comparatively few clumsy and slow moving vehicles most of which were only two-wheeled. The character, volume and rapidity of present-day traffic make the adoption of scientific methods of street planning necessary if real efficiency and economy are to be obtained. The old practice of laying out a more or less regular system of streets of uniform width at uniform distances apart and paving them as driveway or sidewalk for their full widths is wasteful of land and imposes an unnecessary cost for construction and maintenance. Instances may be found in every city where certain streets by reason of having better approaches or more direct connections to important points or by passing through more lively or attractive environment carry a great amount of traffic, while adjacent paralleling streets of equal width carry very little; this is particularly noticeable in residential sections and those sections outside the zones of business concentration. It is human nature for people to wish to be among their fellows and even in crowds and whether walking or riding they prefer

to move slowly through a busy thoroughfare rather than seek greater freedom of movement by going a block or two out of their way.

All the great cities that have experienced rapid growth in comparatively recent years have achieved that growth, directly or indirectly, through the agencies of modern industrialism. The tremendous development of industrial and commercial activities during the past half century has been made possible only by the swift progress that has been made in improving and extending the facilities for transportation. The carriers of the world's trade have bent every energy to meet the demands of commerce on both land and sea, but the people, especially in the United States, acting through the officials in whom they have vested the powers of government, have failed lamentably in enlarging and improving the public channels of traffic, the roads and streets. The city is the workshop and the commercial center where industrialism flourishes and from which its products are distributed over all the world. The city inevitably reaps the benefits and profits but loses much of both through its failure to provide proper facilities for transportation, while private capital and private energy are put unsparingly into larger and better facilities for acquiring greater private benefits and profits.

Our cities should have awakened long ago to the fact that the convenience, prosperity and prestige of all their citizens would be enlarged and enhanced by remodeling their antiquated street layouts and planning their additions and extensions with an intelligent purpose of providing ample, direct and convenient means for the circulation necessary to the highest development of their industrial and commercial activities, just as the great industrial and carrying corporations have extended their zones of activity and increased their earnings by reconstructing and enlarging their plants, by constructing new ones, and by throwing obsolete machinery and equipment upon the scrap pile and taking advantage of every new invention and appliance that spelled progress.

There is no stronger competition today than that which exists between cities for the material things that count for national and international greatness, and, except in those rare instances where a city is so located strategically that industry cannot ignore it or traffic evade it, those cities must inevitably achieve the leadership which offers the widest opportunity and the greatest freedom for the highway circulation necessary to the economic development of in-

tensive industrialism and commercialism, and at the same time controls and regulates the layout of streets and the subdivision and use of property in their residential sections in such manner as will guarantee homes of comfort and contentment among healthful and attractive surroundings for the workers whose energy is the mainspring of industrial progress.